

WHAT IS CLAIMED IS:

1. A method of bleaching bran, comprising:
treating bran with a hydrogen peroxide solution to produce lightened bran having fewer native flavor components, the bran derived from a cereal grain.
2. The method of claim 1 wherein the hydrogen peroxide solution has a pH of about 6 to 7, further including adding an aqueous alkaline solution to raise the pH of the bran and hydrogen peroxide solution to about 9 to 9.5 wherein the aqueous alkaline solution is added in amounts of about 10 to 15 parts (dry weight) of alkaline material per 100 parts grain.
3. The method of claim 2 wherein the hydrogen peroxide solution is an aqueous solution having a concentration of between about 6 and 40%, further wherein the hydrogen peroxide is added in amounts of about 1 to 20 parts of hydrogen peroxide to about 100 parts of bran.
4. The method of claim 3 wherein the hydrogen peroxide solution and alkaline solution are heated together with the bran at a temperature of about 80 to 90 °C for about 20 to 60 minutes.
5. The method of claim 3 wherein the hydrogen peroxide solution and alkaline solution are heated together with the bran under a pressure of about 103.4 to 138 kPA (15 to 20 psi) and a temperature of about 120 to 130 °C for about one (1) to five (5) minutes.

6. The method of claim 2 wherein the cereal grain is selected from the group consisting of wheat, rice, barley, corn (maize), oats, triticale, amaranth, soybeans and mixtures thereof.
7. The method of claim 6 wherein the cereal grain is red wheat or white wheat.
8. The method of claim 7 wherein the cereal grain is a soft winter white wheat that is milled to produce a light bran.
9. The method of claim 1 wherein the bran each have a particle size of at least about 100 microns.
10. The method of claim 1 further comprising:
prior to bleaching, treating the bran with a chelating agent to remove transition metals to produce treated bran; and
blanching the treated bran to inactivate catalase and peroxidase enzymatic systems to produce blanched bran.
11. The method of claim 10 wherein the bran are treated with the chelating agent for about one (1) to 15 minutes at a temperature of about 70 to 90 °C.
12. The method of claim 10 wherein the chelating agent is selected from the group consisting of orthophosphate, metaphosphate, pyrophosphate, polyphosphate, calcium EDTA and sodium EDTA.
13. The method of claim 12 wherein the chelating agent is calcium EDTA or sodium EDTA in a concentration of between about 0.02 and 0.1%.

14. The method of claim 10 wherein the blanching step is performed at a temperature of between about 75 to 85 °C for about three (3) to ten (10) minutes, further wherein residual enzyme activity is below about 10 CIU/g bran following the blanching step.

15. The method of claim 10 further comprising:
washing and rinsing the bran to produce wet bran;
filtering the wet bran to produce filtered wet bran;
treating the filtered wet bran with catalase to remove residual hydrogen peroxide to produce treated filtered wet bran; and
drying the treated filtered wet bran to produce dried bleached bran having an L value on the Hunter scale of between about 82 and 93.

16. The method of claim 15 wherein there are at least two washing and rinsing steps, each followed by a filtering step, prior to the bleaching step and at least one washing and rinsing step followed by at least one filtering step after the bleaching step.

17. The method of claim 15 wherein between about 0.1 and 0.4% of catalase, by weight, of bran is added to the filtered bran at a temperature of about 60 °C, further wherein the hydrogen peroxide concentration is reduced to less than about five (5) PPM following catalase treatment.

18. A method for bleaching bran comprising treating wet bran with an oxidant in the presence of heat, the oxidant selected from the group consisting of hydrogen peroxide, ozone and peracetic acid.

19. The method of claim 18 wherein a combination of hydrogen peroxide and ozone bleaching is used.

20. A method of bleaching cereal grains, comprising:
treating bran with 0.02 to 0.1% EDTA to produce treated bran;
washing, rinsing and filtering the treated bran to produce filtered and treated bran;
blanching the filtered and treated bran at 75 to 85 °C for about three (3) to 10 minutes to produce blanched bran;
washing, rinsing and filtering the blanched bran to produce filtered and blanched bran;
adding a one (1) to 10% alkaline solution and 30 to 35% hydrogen peroxide solution to the filtered and blanched bran at a temperature of about 80 to 85 °C for about 4 to 5 minutes to produce bleached bran;
washing, rinsing and filtering the bleached bran to produce filtered and bleached bran;
adding about 0.14 to 0.4% of catalase, obtain from a fungi called *Aspergillus nigers* at a temperature of between about 55 to 65 °C to the filtered and bleached bran to produce re-catalased bleached bran; and
drying the re-catalased bleached bran in a drum dryer to produce dried bleached bran having about five (5) to 13 g of water per 100 g of dry bran and an L value of at least about 75.

sub B1
A25
21. A bleached bran product suitable for admixing with whole wheat flour to produce white whole wheat flour having an L value on the Hunter scale of at least about 82.

sub A2
22. The product of claim 21 wherein about five (5)% bran, by weight, is added to the whole wheat flour.

23. The product of claim 21 having an L value of between about 82 and 93.

24. The product of claim 21 having a water absorption value about six times higher than native bran.

25. The product of claim 21 wherein native flavor components are reduced or deactivated.

26. The product of claim 21 having an antioxidant activity about 15 to 35% higher than native bran.

sub A3 > 27. The product of claim 26 wherein the antioxidant activity is increased due to increased availability of ferulic acid.

28. A product prepared according to the process of claim 1.

29. A product prepared according to the process of claim 18.

30. A product prepared according to the process of claim 20.

sub B2
sub A4 > 31. A whole wheat flour prepared from peroxide-bleached bran, the whole wheat flour having an L value on the Hunter scale of about and a dietary fiber content of about 10 to 12%.

32. The whole wheat flour of claim 31 substantially free of hydrogen peroxide.

33. The whole wheat flour of claim 32 prepared from soft white wheat or hard white wheat.

34. The whole wheat flour of claim 33 prepared from light bran.

35. The whole wheat flour of claim 33 having a pH of about 6.3 to 6.7.
36. A finished baked good prepared from the whole wheat flour of claim 31.
37. The whole wheat flour of claim 31 admixed with sugar, salt, and leavening.

sub B3
A5 / 38. A bleached bran product suitable for use as an additive in foods.

sub A5 / 39. The bleached bran product of claim 37 wherein the product is added to foods selected from the group consisting of dry mixes, ready-to-eat cereals and soy.

sub B3 / 40. A refrigerated uncooked or bakeable dough product comprising bleached bran.

41. A ready-to-eat cereal comprising bleached bran.

42. A cooked cereal dough comprising bleached bran.

add A6S

B8
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